T. H. Passmore.

Furnace for Heating Scythes &c.

No. 4,797 Patented Oct. 7, 1846.

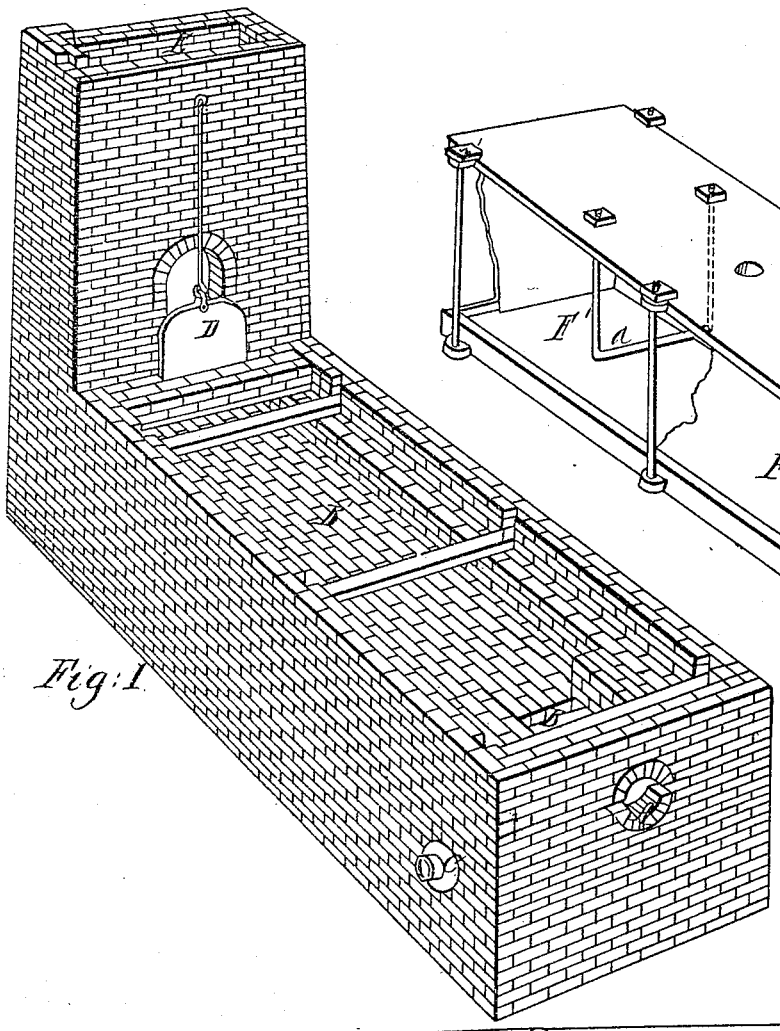

Fig: 1.

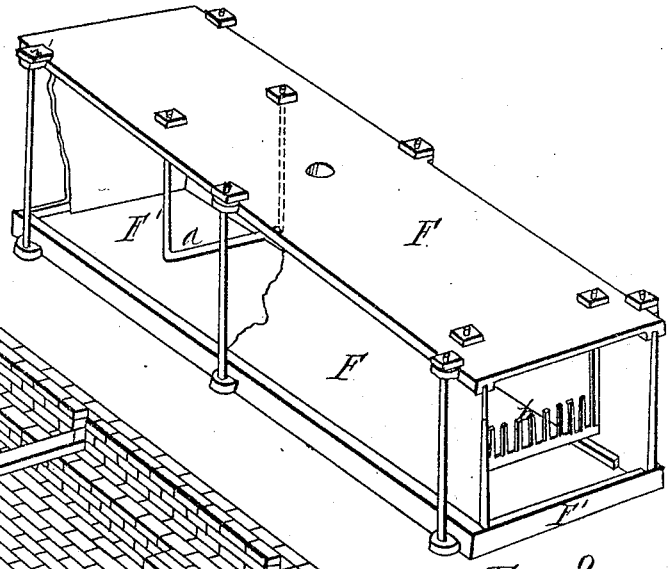

Fig: 2.

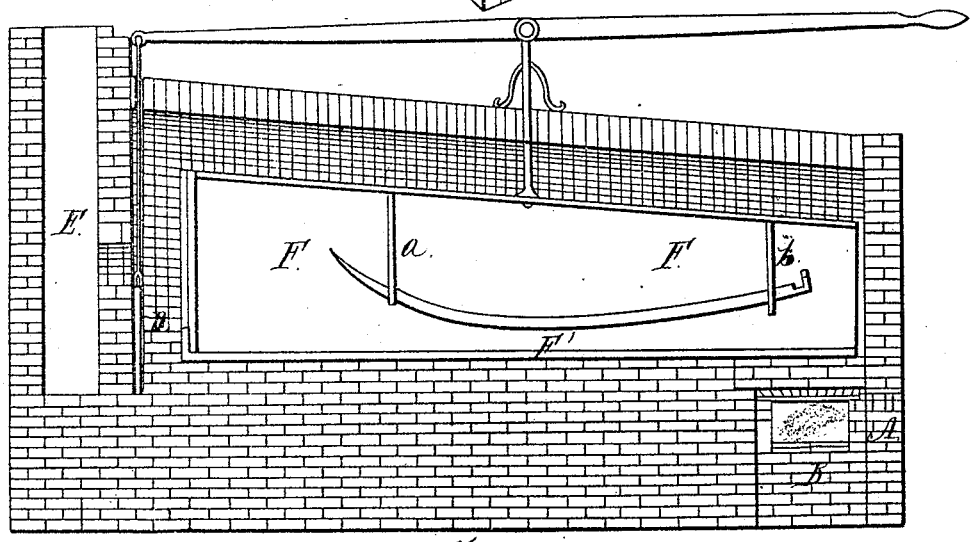

Fig: 3.

UNITED STATES PATENT OFFICE.

WM. H. PASSMORE, OF WAYNE, MAINE.

TEMPERING-FURNACE.

Specification of Letters Patent No. 4,797, dated October 7, 1846.

To all whom it may concern:

Be it known that I, WILLIAM H. PASSMORE, of Wayne, in the county of Kennebec and State of Maine, have made a new and useful improvement in the manner of constructing furnaces for heating scythes and other articles made of steel or of iron and steel combined preparatory to their being plunged in water or other hardening liquor for the purpose of hardening them; and I do hereby declare that the following is a full and exact description thereof.

For the purpose of heating scythes, and other articles of a like character up to the proper degree for hardening, the general practice heretofore has been to take them in their cold state and to pass them over the fire in a heating furnace constructed for that purpose, taking care to heat them as equally as possible in every part; but as scythes, swords, and other articles having a cutting edge, are unequal in thickness, their thinner parts are the most quickly heated, and are liable to be injured from this cause before their backs or thicker parts are sufficiently heated for hardening. To guard against this result, it has been necessary to heat them slowly, which is necessarily attended with much loss of time, while after all, the evil is but partially corrected. In my improved heating furnace I employ a case, or oven of cast iron for the purpose of heating the scythes or other articles previously to their being passed over the fire in the ordinary heating furnace, and in this case or oven I bring them to such a degree of heat as will enable me to complete the heating in the ordinary furnace with great rapidity. As the preparing oven contains a considerable number which are successively placed within it, they have ample time to allow their thicker and thinner parts to be brought up to the same degree of heat.

In the accompanying drawings, Figure 1 is a perspective representation of the heating furnace which has been heretofore used with the exception of the brick arch by which its top has been inclosed. Fig. 2 is the cast iron case or oven which I place above the furnace shown in Fig. 1; when so placed, the bottom of said oven forms the top, or cover, of the heating furnace and will, of course, become highly heated by the fire within said furnace.

The case or preparing oven, I inclose by means of a brick arch excepting at its fore end or mouth; this brick arch is partly shown in Fig. 3 which is a vertical longitudinal section through the middle of the whole apparatus.

In Fig. 1, A is an opening through which the articles to be finally heated for the purpose of being hardened, are to be passed.

B is the fire-chamber in the fore part of this furnace and C represents a blow hole through which the blast is to be introduced to the fire.

D is a damper which is used to regulate the opening into the chimney E which opening is inclosed by the brick arch.

F F Figs. 2 and 3 is the cast iron case or oven the bottom F′ of which reaches from side to side and from end to end of the fire chamber B B′ of Fig. 1. In Fig. 2 I have left out, or shown as cut away a part of the fore side of the cast iron case for the purpose of exhibiting the supports or racks which I use to sustain the articles that are to be heated within it; these are seen at *a* and *b* and should be so formed as to adapt them to the particular articles that are to be heated within them; those represented are such as I have used for scythes.

The iron case or oven F will of course have its bottom F′ highly heated by means of the fire in the fire chamber, and this heat will be communicated to the other parts thereof and the scythes or other articles may be readily brought to a red heat preparatory to their being passed through the opening A for their final heating. I sometimes cover the bottom of the oven F with fine charcoal which will have the effect of increasing the heat and also of equalizing it.

In using this apparatus after bringing it up to the proper degree of heat, I place a number of scythes or other artcles say from eight, to eighteen, on the racks within it, the number being governed by the heat of the oven. When I remove one for the purpose of final heating, I replace it by one that is cold and the series is thus kept up. That which I remove I pass in at the opening A where it quickly acquires the heat necessary for hardening. By this procedure I save full one half of the time that was required for heating under the old plan, and produce much better work. From 4 to 5 dozen was formerly a very good hour's work; with the same blast and expenditure of fuel I now harden full twice the number.

Having thus fully described the construction of my improved furnace for heating scythes and other articles to be hardened, what I claim therein as new and desire to secure by Letters Patent is—

The combining of the preparing case, or oven, with the heating furnace heretofore employed, the said preparing oven being formed and combined with the furnace substantially in the manner and for the purpose set forth.

WM. H. PASSMORE.

Witnesses:
JOSIAH F. TAYLOR,
GEORGE H. WILLIAMS.